TR-71U / TR-72U

Para medir y registrar datos de temperatura y humedad

La línea TR-71U / 72U es compacta y liger, permiten medir y registrar sin esfuerzo. Registra temperatura en un rango de -60 a 155 C y la humedad 10 a 95%. Esos datos pueden ser transferidos a través de cable de alta velocidad USB a su computadora. El exclusivo software le permite crear gráficos y tablas de colores para guardar o imprimir.

〈 PAT.P.〉

CE

TR-71U

TR-72U

El software facilita la creación de tablas y gráficas rápidamente

TANDD

CARDIGAN®

Guatemala - (502) 2310 9494, El Salvador - (503) 2208 4102, Honduras - (504) 2516 1620
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Thermo Recorder

2Ch. Data Logger USB Connection
TR-71U / 72U

Easy USB Connection (Multiple Units OK) / Real-time Monitoring and Graph Display Adjustment Function Enabled Software / 1 Year Operation with only 1 AA Battery

Measure / Record

Download and Analyze

2 Measurement and Recording Channels in Each Unit

TR-71U/TR-72U Thermo Recorders are data loggers capable of measuring, displaying and recording temperature and humidity data. TR-71U has two temperature channels and TR-72U has one temperature and one humidity channel. The data recorded into the TR-71U/TR-72U units can then be downloaded quickly via USB cable to your computer whereby with our exclusive software you can easily process the data into graphs, tables, save to files and/or print it out. Moreover, it is possible to connect more than one unit at the same time.

Wide Temperature Measuring Range -60°C to 155°C

The external sensor that comes with the TR-71U can measure and record from -40°C to 110°C, while optional sensors can give you a range of -60°C to 155°C. There is an array of optional external sensors to meet your every need.

Humidity Measurement Range 10% to 95%RH

The two channel external sensor that comes with the TR-72U can measure and record temperature from 0 to 50°C and humidity from 10 to 95% RH.

Large Data Capacity: 8,000 Readings X 2 Channels

Each channel can record up to 8,000 readings; giving you about one year of continuous recording at a recording interval of 60 minutes.

15 Recording Intervals 2 Recording Methods

You can select from 15 recording intervals from one second to one hour. There are also two methods of recording to chose from.

One Time Method: Recording stops when 8,000 readings have been recorded.

Endless Loop Method: When 8,000 readings have been recorded the oldest data is overwritten and recording continues.

Accurate, Compact, Lightweight and Affordable

Our exclusive design and technology has allowed us to create a highly accurate yet compact and lightweight unit (55×78×18mm 62g) that is unbelievably affordable.

Ready to Use - All in One Package

Everything you need to get started (main unit, sensor, battery, software, communication cable and user's manual) is included in this All in One Package. All you need to do is supply the computer.

Reliable Backup Function

We have eliminated the worry of losing data due to power loss or the switch being accidentally turned off.

When Battery Power becomes Low

When battery power becomes low a battery life warning will appear on the unit's display indicating that the battery should be changed. If within a short time the battery is changed, measurement and recording will not be interrupted and there will be no data loss. If the battery is not changed the unit will automatically go into SLEEP mode whereby measurement and recording will stop but, due to our BACK UP FUNCTION, data will not be lost and will remain saved for up to one year.

When the Switch is turned OFF

If while recording the power switch is accidentally turned OFF, data will not be lost but will be saved for up to one year from the time it was switched OFF.

Note: Even if the unit is in sleep mode it needs battery power. Hence, a total loss of battery power or removal of the battery will result in the loss of data.

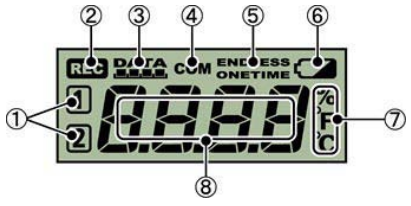
One Year Continual Use on One Battery

Using our specially designed low energy consumption circuit this unit can run on one AA Alkaline battery for up to one year of continued use. No need to worry about where you place it as the battery will allow you to measure and record over long periods of time no matter if the unit is in transit or in a distant place.

Note: Battery life will depend on the recording environment, recording interval, communication frequency, and ambient temperature. The above battery life test was carried out using a brand new battery and in no way do we guarantee a battery's life.

Easy to Read Multi-Functional Display

The easy to read LCD displays present temperature, recording condition, battery life warning, and unit of measurement.



1) The channel number of the measurement being displayed will appear.
2) The recording condition will appear:
   ON:Recording in progress. BLINKING:Waiting for programmed start.
3) After every 2000 readings the scale will be marked from left to right.
4) This will appear when data is being sent or received.
5) ONETIME:When the number of recorded readings reaches 8000, "**FULL**"will appear in the unit's LCD display and recording will automatically stop.
   ENDLESS:When the number of recorded readings reaches 8000, the oldest data reading will be overwritten and recording will continue.
6) When the battery power becomes low, this will appear in the LCD display. If the battery power becomes even lower, SLP will appear and normal operations will stop. If the signal appears, please change the battery as soon as possible.
7) The unit of measurement (°C,°F, %) for the display will appear.
8) Current measurements or operational messages such as FULL or SLP will appear.

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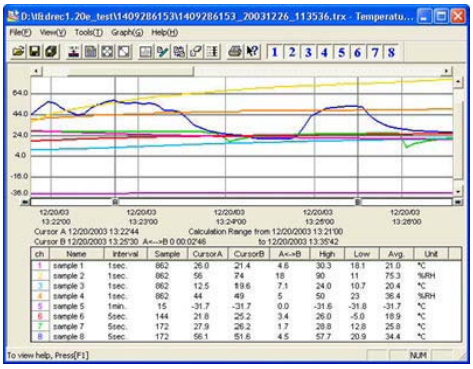
Standard Software

T&D Recorder for Windows

Easy to use Windows comapatible software allows you to control all aspects of set up for any TR-71U/TR-72U unit, as well as to print, and to create text files, tables, and colorful graphs from the recorded data.

Up to 8 Channels of Data can be Processed at One Time

post-adjusted value.
By simply downloading the data from the main unit a colorful graph representing that data will be automatically created. Up to 8 channels (4 units) of data can be represented in one graph.



Adjustment Function

By setting adjustment values beforehand, you can record and display the post-adjusted measurement values. You can choose from two adjustment methods:
1-point and 2-point. Adjustment will be carried out using an adjustment equation of Y=aX+b: where X is the pre-adjusted measurement value and Y is the

Current Readings Monitoring Display

With our exclusive software, you cannot only monitor the current measurements at a set interval, but can view those measurements in a continually changing graph. You can simultaneously display the current measurements and corresponding graphs for the number of units you have connected.

Graph / Table Printing Function

You can print out in color or monochrome the graphs just as they appear on your screen. You can also print out in table form all of the data in order of date and time.

Creating Text Files

You can create Text Files (CSV format, etc...) to allow you the option of processing and managing your data using Excel, Lotus or any other popular spreadsheet software.

Optional Sensors

℃ TR-71U　　% TR-72U

TR-1106 ℃

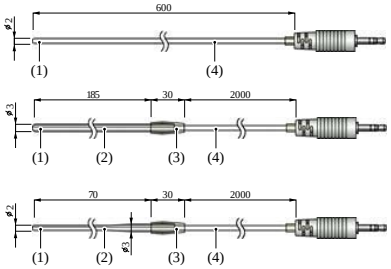
Teflon-Shielded Sensor
Cable Length :0.6m
Thermal-Constant Time:
In the Air Approx. 15 Sec.
In agitated water: Approx. 2 Sec.

TR-1220 ℃

Stainless Protection Sensor
Cable Length: 2m
Thermal-Constant Time:
In the Air: Approx. 36 Sec
In agitated water: Approx. 7 Sec.

TR-1320 ℃

Stainless Protection Sensor
Cable Length: 2m
Thermal-Constant Time:
In the Air: Approx. 12 Sec
In agitated water: Approx. 2 Sec.



Materials 1) Thermistor 2) Stainless Pipe (SUS316) 3)Teflon Compaction Tube 4) Teflon Resin(FEP) Shielded

Possible Measurement Range:-60 to 155°C Sensor Temperature Durability:-70 to 180°C Water Resistant Ability: Splash Resistant
Measurement accuracy: Average ±0.5°C(-40 to 80°C) Average ±1.0°C(-60 to -40/80 to 100?) Average ±2.0°C(100 to 155°C)

TR-0106 ℃ %

TPE resin-shielded sensor
Cable Length: 0.6m
Thermal-Constant Time:
In the Air: Approx. 75 Sec.

TR-0206 ℃ %

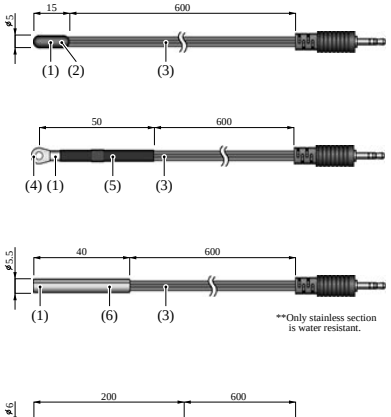
Stainless Protection Sensor
Cable Length:0.6m
Thermal-Constant Time:
In the Air: Approx. 75 Sec

TR-0306 ℃ %

Stainless Protection Sensor
Cable Length:0.6m
Thermal-Constant Time:
In agitated water: Approx. 18 Sec.

TR-0406 ℃ %

Stainless Protection Sensor
Cable Length:0.6m
Thermal-Constant Time:
In agitated water: Approx. 20 Sec.

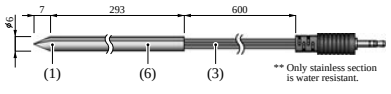


**Only stainless section is water resistant.

** Only stainless section is water resistant.

TR-0506 ℃ %

Stainless Protection Sensor
Cable Lenth:0.6m
Thermal-Constant Time:
In agitated water: Approx. 20 Sec.



** Only stainless section is water resistant.

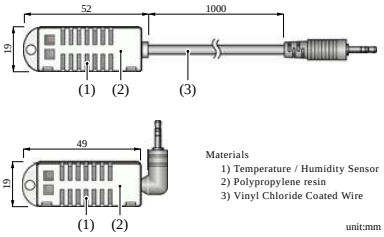
Possible Measurement Range: -40 to 110°C Sensor Temperature Durability:-50 to 115°C
Measurement Accuracy: Average ±0.3°C(-20 to 80°C) Average ±0.5°C(-40 to -20 / 80 to 110°C)

TR-3110 %

Humidity and Temperature Sensor
Cable Length:1m

TR-3100 %

Humidity and Temperature Sensor



Materials
1) Temperature / Humidity Sensor
2) Polypropylene resin
3) Vinyl Chloride Coated Wire

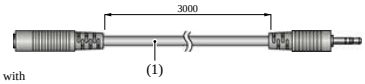
unit:mm

Humidity Measurement Range:10 to 95%RH Temperature Measurement Range:0 to 50°C Sensor Durability Range:-10 to 55°C
Humidity Measurement Accuracy:±5%RH(at 25°C and 50%RH) Service Life: 1year under normal conditions
Operational Conditions: No Dew Condensation or Water Leakage / No contact with organic solvents, solutions or gasses emitted from spoiled foods.

TR-1C30 ℃ %

Sensor Extension Cable
Cable Length:3m

Note: Only one cable per sensor. Can not be used with Temperature / Humidity sensor TR-3110 or TR-3100.

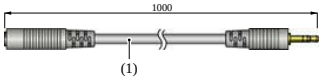


Materials ?Vinyl Chloride Coated Wire

TR-5C10 ℃ %

Sensor Extension Cable
Cable Length:1m

Note: Only one cable per sensor. Can not be used with Temperature / Humidity sensor TR-3110.

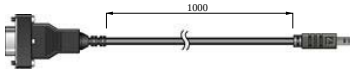


Materials ?Vinyl Chloride Coated Wire

TR-07C ℃ %

Serial Communication Cable
Cable Length:1m

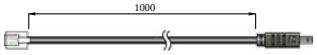
Note: For communication with computer.



TR-4C10 ℃ %

Serial Communication Cable
Cable Length:1m

Note: For communication with RTR-57C

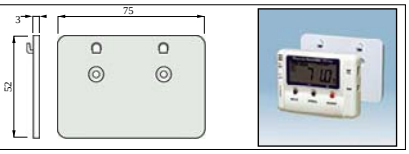


unit:mm

TR-07K2 ℃ %

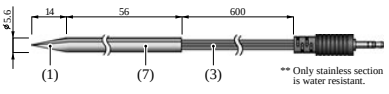
Wall Attachment
Included:
Wall Mount Screws × 2
Double-Sided Adhesive Tape × 1

Material: ABS Resin



TR-0706 ℃ %

Stainless Protection Sensor
Cable Length:0.6m
Thermal-Constant Time:
In agitated water: Approx. 18 Sec.



** Only stainless section is water resistant.

Materials 1) Thermistor 2) TPE resin-shielded sensor 3) TPE resin-shielded wire 4) M3Screw Hole 5) Compaction Tube 6) Stainless Pipe(SUS304) 7) Stainless Pipe(SUS316)

unit:mm

Product Specifications

Unit	TR-71U	TR-72U	
Measurement Channel	2 Channels (Select from Ch1. internal / Ch.2 external)	2 Channels (Temperature and Humidity)	
Measurement Item	Temperature	Temperature	Humidity
Internal Sensor	-10 to 60°C	-10 to 60°C	-
External Sensor	-40 to 110°C	0 to 50°C	10 to 95%RH
Optional Sensor	-60 to 155°C *1	-40 to 110°C	-
Measurement Accuracy (Standard Sensor)	Average ±0.3°C (-20 to 80°C) Average±0.5°C-40 to -20/80 to 110°C)		±5%RH (At 25°C 50%RH)
Measurement Resolution	0.1°C		1%RH
Sensor Materials	Thermistor		Macromolecular Humidity Sensor
Recording Interval Recording Capacity	1-2-5-10-15-20-30 Seconds / 1-2-5-10-15-20-30-60 Minutes Total of 15 choices 8,000 Readings × 2 Channels		
Recording Method	Endless Loop Method (Overwrite from the oldest data when recording capacity is full) One Time Method (Stop recording when recording capacity is full)		
LCD Display	(Ch1 only, Ch2 only, alternating display) Measurements, Recording Status, Battery Life Warning, Amount of Recorded Data, Unit of Measurement		
Power	AA alkaline battery (LR6)		
Battery Life	About 1 year *2		
Data Back-up	Activated when battery power is low or when switch is off (About 1 year)		
Interface	USB Communication Cable (option: RS-232C)		
USB Communication Time	When downloading (1 unit of full data - about 8 seconds)		
Dimensions	H55mm × W78mm × D18mm		
Weight	About 62g (Including one AA battery)		
Attached Sensors	TR-0106 × 2 (TEP Resin-coated sensors)	TR-3100 × 1 (Temp. Humidity Sensor)	
Accessories included in package	AA alkaline Battery (LR6) × 1 / User's Manual (Warranty) × 1 USB Cable× 1 (US-15C ; length 1.5m) Software Set × 1 / User's Manual (Warranty) × 1		

*1: There are two types of temperature sensor for TR-71U depending on measurement range.

*2: Battery life depends upon the measuring environment, recording interval, and quality of the battery being used.

Software Specifications

Software	T&D Recorder for Windows
Compatible Devices	TR-71U - TR-72U
Communication Functions	Recording Start (Programmed Start / Immediate Start) - Recording Stop Main Unit Settings (Recording Interval - Recording Method - Upper and Lower Limits) Downloading of Recorded Data
Temp/Humidity Graph Graph Display	Temperature and Humidity Graphs for each Channel Zoom in, out and scroll with mouse or keyboard Change Channel Colors - Turn ON and OFF Channel Display
Data Display	Channel Name - Recording Interval - Number of Readings Highest, Lowest and Average Readings - Unit of Measurement. AB Cursor Dates, Times and Data Readings Calculated Difference between Cursor A and B
Number of Channels	8 Channel Simultaneous Display and Processing Possible to process mixed data from TR-71U and TR-72U units. (up to 4units.)
Others	Data List Display - Calculation Range Settings - Data Maintenance Edit Recording Conditions - Delete Data by Channel Re-order Data by Channel
Other	Serial Port Auto Find Function
File Output	T&D Common Data File - Text File (CSV, etc) (Selected Range or File for Entire Period)
Printing	Graphs / Tables
Compatible OS	Microsoft Windows 2000 / XP English Microsoft Windows 98 / Me English Microsoft WindowsNT 4.0 English *1
PC/CPU	IBM Compatible with higher than Pentium 90MHz USB Port (1.0 / 1.1)
Memory	More than 16MB
Hard Disk	More than 4 MB of free space (Data will need more space)
Monitor	VGA (640 × 480) more than 256 colors

*1: USB communication with TR-71U / 72U data loggers cannot be carried out using WindowsNT4.0.

System Setup